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ABSTRACT

Rapid advancement in computer technology in recent years, including easy accessibility, expansion of computer networks, and diversity of applications, support the use of computer-assisted instruction (CAI) in second language education. All secondary schools in Japan now have computers and computer instruction. Misconceptions about computers and their capabilities persist, particularly among teachers. The proliferation of software makes many instructional applications feasible. In Japan, hardware is developing rapidly and becoming more affordable, but commercial educational software is expensive and not well developed, despite interest among educators. Computers can be used in English-as-a-Second-Language instruction in many ways: preparation of lessons, instructional materials, and tests; professional information and materials exchange; classroom management; multi-media presentation; and for individualized instruction. Their versatility, efficiency, and accuracy offer many advantages. Disadvantages include technical limitations, perennial need for new software, cost, and continual obsolescence. Parallel benefits and disadvantages are found in CAI. A significant advantage of CAI is its potential for individualization without additional teachers, and this use promotes active participation in learning. Teachers wishing to begin CAI are encouraged to consult with colleagues familiar with it and to research resources available through their own or nearby institutions. Contains lists of online TESL resources; organizations; useful e-mail addresses; funds for CAI; and a commercial database address. Also, contains 17 references. (MSE)

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STARTING CAI ENGLISH CLASSES

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ABSTRACT

In this paper, I will discuss the reasons why we should be interested in foreign language computer assisted instruction (CAI), some misconceptions about computers and CAI held by foreign-language teachers, trends in CAI in TESOL in the United States and Japan, content of foreign language CAI, advantages and disadvantages of computers and CAI, foreign language CAI materials, individualizing instruction using computers, benefits of CAI, how to start a CAI program. I will also offer some useful information resources related to CAI.

1. WHY COMPUTER ASSISTED INSTRUCTION (CAI)?

Why are we here today to discuss computer assisted instruction (CAI) of English classes? There are many reasons.

Computers have been developed rapidly over the past quarter century, and particularly over the past five years. They have become more powerful (that is, they can process and store much more data), faster, cheaper, and smaller. They are within the reach of even ordinary people. In recent years, equipment such as hard disks, CD-ROMs, laser disks, and printers used with computers has also developed rapidly.

Various computer networks have been connected and have become more convenient. There are many local, commercial and academic computer networks. More and more college professors and business people are connected to the Internet. There are some "lists" for EFL teachers and students, forums where interested people discuss various issues by writing messages that are sent by computer to all the people registered with the list. Anyone with an account on any network can be connected with people with the same interests all over the world.

"Multi-media" is a buzz word today in the field of computers. Using multi-media involves combining written text, sounds, still pictures, and videos using computers and computer networks. This means that the world of the computers are getting closer to the world of human beings. As the hardware develops, this becomes more realistic and cheaper.

Computers are becoming more compatible. With the development of a computer program called Windows, we can use the same software on the different types of computers, such as IBM, NEC and Fujitsu. Even IBM-compatible machines and Macintosh are getting more compatible, and there are some types of software which will run on both machines.

There is more and better commercial software on the market. There is also shareware, which users pay only a small fee to use, and freeware, which is free. They are available through networks and books.

Computers are becoming more common. As the price of computers decreases, more people have their own computers at home. Some people own several computers, and some carry laptop computers and work while commuting. There are more computers at offices and schools.

People have found the different ways to use computers. Some people use them to play games. Some use them as word processors to write. Some use spread sheet programs to keep records and manipulate data. Some use them to study different subjects. Some make programs for their own use. Some use dictionaries, encyclopedias, and other reference works on computer to look up information. Some use them for communicating with others and exchanging information. Some use them to obtain information from databases. Some people subscribe to computer discussion lists. There are many, many ways to use computers, and it is not exaggerating that every person who uses computers is using them differently.

Many machines we use today have computers which control them, so people use computers without being aware of it.

Last but not least, as a reason to discuss CAI, all junior and senior high schools in Japan have computer classes for all students now. All those schools have computers, and we have to think how to use them.

2. MISUNDERSTOOD CAI

Even though people encounter computers more and more in their daily lives, computers are still misunderstood by many people, particularly by teachers. Some people believe computers are almighty and can do anything quickly and accurately. In contrast, some people do not believe that computers are useful and believe that the work of people is much better that the work of computers. Many people, particularly older people, do not understand computers and do not even try to do so. Some people think that CAI is very expensive. Some people are hoping that computers will do all work they do not like to do.

3. TRENDS OF CAI IN TESOL

The largest organization of English language teachers (TESOL) based in the United States has a special interest group called Computer Assisted Language Learning (CALL) for teachers interested in using computers.

In many schools, CAI makes use of personal computers. Many teachers have developed software, particularly using hypercards on Macintosh. There are many freeware and shareware programs in the United States, and the CALL interest group distributes them for a nominal fee. Most software is designed for self-study, but not for

drills of grammar and vocabulary. They put more emphasis on games and simulations, and on productive language skills, such as speaking and writing. Questions that users answer do not necessarily have one right answer, but several answers are accepted, or there may be no one single correct answer.

There are many programs related to conversation, such as programs as those in which deal with listening, speaking, recording, comparing voices, and reading and writing along with listening and speaking. There are many educational games and simulations. Recent ones have for teaching English have both English and students' native languages. Multi-media software is getting more common and cheaper. They are on Windows or OS2, or a stack of hypercards. Many software programs are developed for individual use.

E mail is getting more and more common in schools, more and more teachers are using E mail for correspondence. With the development of CD-ROM, concordances are very common and cheap, and their use is getting more attention.

4. TRENDS OF CAI IN JAPAN

Hardware is developing very, very fast, and even people who specialize in hardware cannot keep up with its development. Hard disks and CD-ROM are highly developed and have become cheaper. This makes it possible to handle very large files that include sound, pictures, and video.

Commercial educational software is still not well developed. Good software is very expensive. There is not a wide variety of educational software, and much of it is drill oriented. There are not many programs that help students create something using a computer.

There is relatively little information available on language

teaching CAI, though there is some. Language laboratories Association (LLA) and CALL Special Interest Group (SIG) of the Japan Association of Language Teachers (JALT) have had some meetings on CAI. LLA had its annual conference last August, and its theme was multimedia. CALL-SIG had a special conference on writing in September of last year. The Fourth CAI conference, which was held at Doshisha University in February of last year, had more than 40 presentations, mainly about teacher-made programs, and papers based on some of those presentations were published in Computer Riyo no Gaikokugo Kyoiku. The Japanese Universities Association for Computer Education (Shijokyo) has an annual conference every September, and some of the presentations are on language teaching. The July issue of their journal was a special issue on language teaching CAI.

Many schools are interested in starting language teaching CAI programs. They may have facilities and equipment, but many of them do not have appropriate software or trained personnel.

Schools usually do not have enough people, equipment, and money to develop their own foreign language programs. In many cases, they do not have a large enough budget to buy enough copies of software for instruction. Unfortunately, I hear that there are problems with copyright violation in schools.

Many people believe multimedia CAI programs are better than simple programs. However, multimedia ones are less flexible, less adaptable for students, and harder to use.

5. COMPUTER ASSISTED INSTRUCTION (CAI)

There are many ways to use computers for English teaching. First of all, teachers can use them to prepare for classes. They can use a word processing program to write teaching materials and tests. They

can use dictionaries, encyclopedias, etc., available on the computer to prepare materials. Computer networks are also useful for getting teaching materials exchanging them with other teachers, and getting new ideas. Teachers can use commercial databases.

Computers can also be used for administering classes. They can be used to give assignments, analyze the results, and to keep attendance and other records. They can be used to keep grades, do statistical analyses of grades, and evaluate the class as a whole as well as individual students. This type of use is called "computer managed instruction (CMI)".

We can use computers to make our classes more effective. There are two ways to use them. One is the use by a teacher to present pictures, videos, and written text with or without sound. It is possible to have a multi media presentation. We can program the presentation in advance or handle manually. It is much easier to make slide presentations with a computer since a random access is possible. We can handle multiple media at the same time with a computer, and it is easier to handle a computer than handling a slide projector and a tape recorder at the same time.

Another way to use computers is to have students use the computers themselves--this is actually computer assisted instruction. The computer provides materials to study and students can interact with a computer, that is, they have a library and a tutor. They can work on drills, tutorials, games, and simulations. They can work by themselves or with classmates in pair work or group work. Interaction between/among students is as important as that with a computer in learning. Students can work on a computer during the class, doing assignments, reviewing, or even preparing for the class. Using computers allows students to work at their own pace. Slower workers can catch up, and advanced students can do extra assignments.

6. ADVANTAGES AND DISADVANTAGES OF COMPUTERS

Advantages

Computers can present materials in various ways. They can use various colors, type faces, and sizes of letters. They can present a text word by word, phrase by phrase, line by line, question by question, page by page, etc. They scroll lines of text up the screen, or change screens after a set time.

If the teacher wants to present only a few words or sentences on each page, this would be wasteful and expensive to do on paper, but computers are an economical way to do it.

Computers do not get tired and can repeat the same thing again and again without complaining. Whatever it is programmed to do, it can do over and over as often as necessary.

Computers can give immediate feedback, if they are programmed to do so. They can confirm that an answer is correct, give the correct answer or a hint if the answer is incorrect, etc.

Computers can rapidly and accurately check whether two strings of characters are the same, making them useful for checking spelling or answers.

Computers have a clock. The clock can be used to time the students' work, limit the amount of time allowed to read a passage or do an exercise or a set of exercises, etc.

Computers can keep records accurately. Teachers can keep track of individual or class scores and times.

Computers can calculate quickly and accurately. Teachers can get the total score, average, standard deviation and statistically analyze individual student and class results.

Computers can run various kinds of software. Users can run a word processing program, a spread sheet, databases, games, etc., all

on the same computer.

Computers can use information from floppy disks, hard disks, CD-ROM, laser disks, computer networks, etc.

Computers can be connected with others through the networks, and users can communicate with people all over the world on other computers. We can use other computers and get information.

Disadvantages

Computers have limitations on their memory, speed, methods of input and output, etc. The more powerful computers have fewer limitations, but still they do have some limitations.

Computers only do what they are programmed to do. It is necessary to have proper software for a given task.

Computers need programs that were designed for them. Programs for other kinds of computers may not work. Even the so-called compatible computers are not 100 percent compatible.

Computers are expensive, though they have become less and less so. They are still not as cheap as hand-held calculators or typewriters.

Computers break down. They may have technical problems. They certainly do not work without electricity.

In order to use a computer, a user has to know how to use it, that is, to know what commands to give the computer and how to respond to the computer. If the user does not know these, the computer will not function.

Computers are improving so fast that we cannot follow their development. Improvements and new equipment sometimes seem to come out every day.

7. ADVANTAGES AND DISADVANTAGES OF CAI

Advantages

CAI is good for motivating students to study English. Students are anxious to use computers. Many students are tired of traditional English classes and are interested in a new style of learning. When they use a computer, feel like they can master English. They can study English with their own learning style. They feel like they are learning something. Students think the materials are new and fresh if they are presented on computers. They are interested in even routine such as learning to type. They can clearly see the results of their work.

Students can get different types of input using a computer. Using multi-media materials, computers can display written text and use sounds, still pictures, and video. Students feel things are more real and more easily understood. They also have access to various types of aids, including dictionaries, pictures, graphs of intonation, and voice recordings.

Learning can be individualized using computers. Students can study materials related to their individual goals and interests. Students can study materials related to what they need or are interested in, with the appropriate difficulty and at their own pace. Computers can analyze the problems of each student, and the teacher can help individual students with their problems based on the analysis.

It is also possible to do programmed instruction using a computer. Students use minimum step programmed materials, with each level slightly more advanced than the previous one. They use what they learned in one step to do the next one.

CAI can overcome barriers of time and place. If a school has a

satellite system of computer laboratories, students can study English at various places on campus at any time. If the school has a network of computer laboratories, students can use the same materials wherever they are working. Students can study at home if they have a computer to connect to the school computer. Computers can be connected among schools, and teachers can use them to share materials and information. Teachers can get materials from commercial companies, networks, or databases, even from foreign countries. It is possible to communicate with people in many foreign countries for a nominal charge. Note-type computers are getting cheaper, and some schools are lending them to students, so that they can take them home and use them at any time.

Students can use computers build on the work they have done. For example, they can use word processing program to write a composition, to edit it before they turn it in to the teacher, and then to change the composition based on their teacher's comments. The computer allows them to make corrections easily so that they do not have to retype the final draft. Students can also use computers to work on projects with their classmates, such as a class newspaper, and classmates can comment on each other's work and make changes.

There are computer programs to check spelling and grammar. These allow students to avoid mechanical errors and pay more attention to more substantial matters.

Disadvantages

CAI, of course, requires computers and software as well as other equipment, all of which are expensive. A special classroom is also necessary, and technicians to keep the computers working properly. Since students often have trouble, we need assistants to help them with a computers.

No matter how simple computers and software are, students need to

learn a great deal to use them. Just learning to use the computers and software often requires a lot of time and energy before students can even begin to use them to study a subject. Input is usually from a keyboard, so students need to learn to type fairly well before they can use computers effectively.

CAI is not most effectively used for traditional classes. To use computers most effectively, it is necessary to develop new methods and materials that are specifically for computers. It may also be necessary to change the way students are evaluated.

It is also necessary to train teachers. They need to understand the theory behind CAI as well as how to use computers. They have to learn the best methods for teaching classes with computers. Teachers can take courses on CAI, attend conferences and orientations, and share ideas with other teachers.

8. CAI MATERIALS

CAI materials are very diverse. They include drills, tutorials, games, simulations, and information databases. Good CAI materials are easy to use, have a clear purpose, are enjoyable, can be used for self study (without a teacher's help), and are based on instructional theory.

There are some potential problems with CAI programs. Programs can be used by a certain computers only. Some of them need some special equipment such as a CD-ROM, a laser disk, a videoboard, or a speaker. They are usually expensive, and good materials are not easy to make. Simple ones are often unsatisfactory, and complicated ones are too difficult to make. Making computer materials requires a knowledge of developing English teaching materials and also of computer programming. CAI materials are more complicated than

textbooks, so thus it is very difficult to make good ones.

9. INDIVIDUALIZING INSTRUCTION

One problem in English instruction is that students have a variety of interests and levels of English proficiency. Their learning speeds and learning styles also vary.

Individualized instruction is philosophy of education that emphasizes giving adequate instruction to each student. We may have different purposes, methods, contents, levels and speed of instruction. This means that students are the center of learning, and teachers help them learn. Students have to take more responsibility for their learning. They have to learn how to learn. They are evaluated on whatever they have learned. This is very different from traditional teaching, and it is necessary to study methods, techniques, and materials for individualized instruction and to train teachers in doing it.

CAI has the potential to enhance individualized instruction without requiring an increase in the number of teachers. Computers can help students learn, because they present materials better than textbooks do, and they keep records.

In order to have good individualized instruction, we need facilities, machines and equipment, materials, and staff people to help students.

The advantages of individualized instruction are that it encourages active learning, uses the results of previous learning, promotes learning with comprehension, and allows to see their progress.

Some drawbacks of individualized instruction are that it is expensive, it requires teacher training, and it increases the

teacher's work.

Individualizing a whole program of instruction is very difficult, but it is possible to partially individualize instruction, for example, by allowing students to work at their own speed and/or to choose the content of the materials they want to study, the method by which they want to learn or the level of difficulty of the materials they use. In my experience, students are happy with even partially individualized instruction, and it is more effective than traditional teaching.

10. BENEFITS OF CAI

When using a computer, students must study actively. They cannot just passively listen to the teacher, as they do in a lecture class. They think and learn with assistance of a computer. Students and teachers can see how well they are learning and what their problems are. Teachers can adjust the class to students' learning. Instruction can be individualized, and each student can learn according to his/her ability, both in the difficulty level and the pace. Students can learn about subjects they are interested with their own learning styles. Learning with a computer is inherently more interesting, and students do not get bored. They can process more materials with a computer than with a textbook in the same amount of time. So far, my students have been satisfied with the results of their learning. My CAI classes have had fewer absences and dropouts than other classes.

11. HOW TO START CAI

The best way to start a CAI program is to consult with friends and colleagues who are familiar with computers. It is very difficult to start using a computer if you use only manuals or books. It is also a good idea to go to computer business shows to understand what computers can do, what kinds of software are available, and what you can do with them.

It is also important that you actually try out computer programs. You can go to the LLA conference, for example, and see what other people have done. If you know of schools where teachers are doing CAI, it is useful to visit them and see what they are doing.

TESL-L is a large list for teachers of English to speakers of other languages. There are some sub-groups such as TESLCA-L for CAI, TESLFF-L, FESLIE-L, TESLIT-L, TESLJB-L, and TESLMW-L. You can subscribe to these free. You can also subscribe to TESL-EJ, an electronic journal on TESOL, which is also free. (See the appendix.)

Commercial databases are also very useful. NEXIS covers many newspapers from all over the world, and some broadcasts, as well. It costs only ¥50,000 per month for unlimited use. Many universities are already subscribing. Nikkei Telecom covers Japanese English newspapers. There are also commercial networks such as Niftyserve and PC-VAN, which you can use for E mail and some databases and software. You can connect to the Internet as well.

If you are working for a college, you can open an account at a large national university computer center, such as Kyushu University, Osaka University, or Kyoto University, where you can use Bitnet or the Internet. Many colleges have workstations which are connected with the Internet, through which you can connect to many computer networks in the world. Practically, you can use many computers throughout the

world. You can transfer files from many, many computers. If you are a member of LLA, you can open the account at NACSIS, and you can use for E mail.

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Teaching Materials

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Appendix: Useful Information

Lists

TESL-EJ (electronic journal on TESOL)
listserv@cmsa.berkeley.edu
sub teslej-l kenji kitao (Use your own name)

TESL-L (list for TESOL)
listserv@cunyvm.cuny.edu
sub tesl-l kenji kitao (Use your own name)
set tesl-l digest

TESL-STUDENT LIST (list for students of English)
listserv@latrobe.edu.au
sub XXXXX-SL
CHAT-SL, EVENT-SL, MOVIE-SL, MUSIC-SL, SPORT-SL

Organizations

LLA (Language Laboratory Association)
(Some chapters have study groups on CAI.)

JACET (Japan Association of College English Teachers)
(Some chapters have study groups on CAI.)

NACSIS (National Center for Science Information Systems
Phone 03-3942-2351 Fax 03-3942-6900

CAI

Shiritsu Daigaku Joho Kyoiku Kyokai (Japan Universities Association for Computer Education (JUCE: Shijokyo)
Phone 03-3261-2798 Fax 03-3261-5473

Teleclass International ytakagi@apic.or.jp
(This is good for those interested in have correspondence with other classes throughout the world.)

multimedia study group ozeki@isc.chubu.ac.jp
Shuji Ozeki Niftyserve MAG00211
Masatoshi Sugiura Niftyserve MHB02601
(Teachers interested in multimedia or CAI are exchanging ideas and information. If you have a fax and just want to get information, you can join for an annual fee of ¥3,000.)

Commercial Database

NEXIS & Nikkei Telecom
Nekkei Sogo Hanbai
Phone 03-3256-2260 06-202-0931

Useful E Mail Address

Thomas Robb — trobb@cc.kyoto-su.ac.jp
(He is involved in TESL-L, TESL-EJ and TESL student lists.)

Haruo Nishinoh — Niftyserve GBA01431
hnishino@doshisha.ac.jp
(He has used NEXIS database to teach reading English newspapers.)

Kenji Kitao — kkitao@doshisha.ac.jp
Phone 07746-5-7070

Funds for CAI

Kokusai Communication Kikin
2-3-1 Nishishinjyuku, Shinjyu-ku, Tokyo 163-03
Phone 03-3347-7094
research, hosting international conferences
attending international conferences,
social and cultural activities

Denki Tshushin Fukyu Zaidan
Nishishinbashi Wako Bldg. 5F
1-6-11 Nishishinbashi, Minatoku, Tokyo 105 Phone 03-3580-3411
attending international conferences